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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,599	09/12/2003	Yoji Ito	019519-276	7882

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EXAMINER	
HON, SOW FUN	
ART UNIT	PAPER NUMBER
1772	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/660,599	ITO ET AL.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on 2/5/07.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-10 and 19-22 is/are pending in the application.

4a) Of the above claim(s) 1-10,19 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 20-22 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/716,258.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/12/03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 20-22 in the reply filed on 02/05/07 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The equations contain the variable "d", which represents the thickness of the transparent substrate. "d" thus has a unit of length that is missing from the numerical values present on both ends of the two mathematical relations. The thickness unit of "nm" that is supported in the specification, will be used in the prior art rejections below in order to advance prosecution.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 20 is rejected under 35 U.S.C. 102(b) as being anticipated by Aizawa (US 4,427,741).

Regarding claim 20, Aizawa teaches a sheet polarizer (polarizing film, column 1, lines 5-10) comprising two polycarbonate substrates (To both surfaces of a polarizer, column 3, lines 65-68, the polycarbonate casting film was bonded, column 4, lines 1-2), which appear to be identical to those disclosed in Applicant's specification, and Applicant's specification evidences that these polycarbonate substrates are transparent (the transparent substrate, polycarbonate, page 11, third paragraph), and a polarization layer sandwiched between them, wherein the polarization layer comprises a polyvinyl alcohol film (to both surfaces of a dichroic dye-type polarizer wherein Direct Black was adsorbed in a polyvinyl alcohol film, column 3, lines 65-68). Aizawa teaches that the polyvinyl alcohol film is stretched, and a polarizing element adsorbed to the film in an oriented state (adsorbing a dichroic dye, elongating the film, column 1, lines 60-66). Aizawa teaches that the polarizing direction of the incident light is directed 45° to the longitudinal axis direction of the transparent substrate (film, column 2, lines 55-50, formed on surface of polarizer, column 2, lines 40-45), and that the directions of orientation of the transparent substrate and the polarization layer coincide (polarizer, column 3, lines 15-25). The polarizing direction is the direction of orientation of the polarization layer, and hence the direction along which the polyvinyl alcohol film, which is the polarization layer, is stretched relative to the longitudinal direction of the polyvinyl

alcohol film. Therefore, the polyvinyl alcohol film is stretched at an oblique angle of 45 degrees, which is within the range of from 10 to 80 degrees.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aizawa as applied to claim 20 above.

Aizawa teaches a sheet polarizer comprising two transparent substrates and a polarization layer sandwiched between them, wherein the polarization layer comprises a polyvinyl alcohol film stretched at an oblique angle within the range of from 10 to 80 degrees, and a polarizing element adsorbed to the film in an oriented state, as described above. Aizawa fails to disclose that the transparent substrate has retardation properties that satisfy the following relations at any of the wavelengths ranging from 380 nm to 780 nm:

$-10\ nm \leq (nx - ny) \times d \leq 10\ nm$; and $0\ nm \leq \{(nx + ny)/2 - nz\} \times d \leq 40\ nm$.

However, Aizawa teaches that the transparent substrate has a retardation of 5 nm (column 4, lines 1-20), which is measured at a 45 degree angle to the longitudinal axis of the transparent substrate (direction of the film, column 2, lines 54-65), and that it is preferred to have substantially no orientation (column 2, lines 65-68) and hence no

retardation, that is a retardation of 0 in theory (column 3, lines 9-10), for the purpose of providing a transparent substrate with minimized retardation, and hence the desired minimized optical interference to the polarizing layer.

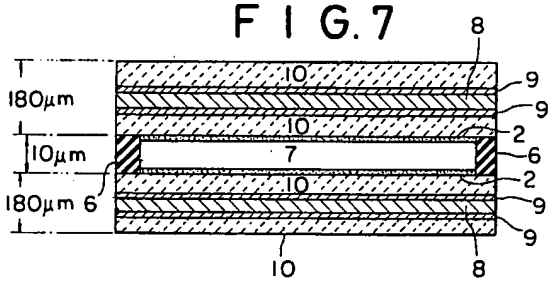
Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have optimized the process of forming the transparent substrate in the sheet polarizer of Aizawa, to form a transparent substrate with retardation properties that are close to zero, and hence satisfy the following relations at any of the wavelengths ranging from 380 nm to 780 nm: $-10\ nm \leq (nx - ny) \times d \leq 10\ nm$; and $0\ nm \leq \{(nx + ny)/2 - nz\} \times d \leq 40\ nm$, in order to provide a transparent substrate with the desired minimized optical interference to the polarizing layer, as taught by Aizawa.

5. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aizawa as applied to claims 20-21 above, and further in view of Ichikawa (US 4,387,133).

Aizawa teaches a sheet polarizer comprising two transparent substrates and a polarization layer sandwiched between them, wherein the polarization layer comprises a polyvinyl alcohol film stretched at an oblique angle ranging from 10 to 80 degrees and a polarizing element adsorbed to the film in an oriented state, wherein the transparent substrates provide the desired minimized optical interference to the polarizing layer which has a polarizing direction at an oblique angle, as discussed above. In addition, Aizawa teaches that the sheet polarizer is used in a liquid crystal display (column 1, lines 10-20), but fails to disclose that the sheet polarizer is at least one of two sheet polarizers arranged on both sides of a liquid crystal cell in the liquid crystal display.

However, Ichikawa teaches a sheet polarizer comprising two transparent substrates and a polarization layer sandwiched between them, wherein the polarization layer comprises a polyvinyl alcohol film and a polarizing element adsorbed to the film in an inherently oriented state (cellulose triacetate film bonded on both surfaces of a polyvinylalcohol-iodine light-polarizing film to obtain a laminated light-polarizing sheet, column 14, lines 10-16). Ichikawa teaches that the sheet polarizer (laminated light-polarizing film provided with light filter properties, column 8, lines 5-6) is at least one of two sheet polarizers arranged on both sides of a liquid crystal cell in a liquid crystal display in Fig. 7 shown on below (panel illustrated in Fig. 7 is prepared from the light polarizing sheet, column 10, lines 47-50, symbols have same meanings as in Fig. 1, column 8, lines 34-40, light-polarizing sheet prepared from a light-polarizing element film (8) laminated with a supporting film (10), conductive base plates brought together and the space is saturated with liquid crystal (7), column 1, lines 15-25), for the purpose of providing the desired light-polarizing properties.

FIG. 7



Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made, to have used a sheet polarizer which has a polarizing direction at an oblique angle, taught by Aizawa, as at least one of the two polarizer

sheets arranged on both sides of the liquid crystal cell in a liquid crystal display, in order to utilize the specific optical properties of the polarizer sheet for the display, as taught by Ichikawa.

6. Claims 20, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa (US 4,387,133) in view of Land (US 3,506,333).

Regarding claim 20, Ichikawa teaches a sheet polarizer comprising two transparent substrates and a polarization layer sandwiched between them, wherein the polarization layer comprises a polyvinyl alcohol film and a polarizing element adsorbed to the film in an inherently oriented state (cellulose triacetate film bonded on both surfaces of a polyvinylalcohol-iodine light-polarizing film to obtain a laminated light-polarizing sheet, column 14, lines 10-16). Ichikawa fails to disclose that the polyvinyl alcohol film is stretched at an oblique angle ranging from 10 to 80 degrees.

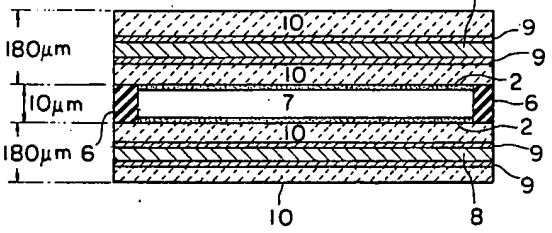
However, Land teaches a stretched and hence oriented, polyvinyl alcohol film, and a polarizing element adsorbed to the film in an oriented state (incorporating a dichromophore resulting from an iodine stain, column 4, lines 30-35), wherein the polyvinyl alcohol film is oriented, and hence stretched, at an oblique angle between 0 and 90 degrees (transmission axis of polarizer 14 is oriented at an angle which is neither parallel nor perpendicular, column 3, lines 30-35, intermediate angle, column 3, lines 43-44), which encompasses the claimed range of from 10 to 80 degrees, for the purpose of providing optical rotation of polarized light (column 3, lines 40-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a polarization layer wherein the polyvinyl

alcohol film is stretched, and hence oriented, at an oblique angle ranging from 10 to 80 degrees, as the polarization layer in the polarizer sheet of Ichikawa, in order to obtain polarized light with the desired optical rotation, as taught by Land.

Regarding claim 22, Ichikawa teaches that the sheet polarizer (laminated light-polarizing film provided with light filter properties, column 8, lines 5-6) is at least one of two sheet polarizers arranged on both sides of a liquid crystal cell in a liquid crystal display in Fig. 7 shown below (panel illustrated in Fig. 7 is prepared from the light polarizing sheet, column 10, lines 47-50, symbols have same meanings as in Fig. 1, column 8, lines 34-40, light-polarizing sheet prepared from a light-polarizing element film (8) laminated with a supporting film (10), conductive base plates brought together and the space is saturated with liquid crystal (7), column 1, lines 15-25), for the purpose of providing the desired light-polarizing properties.

FIG. 7



7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa in view of Land as applied to claims 20, 22 above, and further in view of Aizawa (US 4,427,741).

Ichikawa, in view of Land, teaches a sheet polarizer comprising two transparent substrates and a polarization layer sandwiched between them, wherein the polarization layer comprises a polyvinyl alcohol film stretched at an oblique angle ranging from 10 to

80 degrees, and a polarizing element adsorbed to the film in an oriented state, wherein the transparent substrates provide the desired minimized optical interference to the polarizing layer, which has a polarizing direction at an oblique angle, as discussed above. In addition, Ichikawa teaches that the transparent substrate should have a retardation of not more than 30,000 nm, ideally 0 nm (isotropic, transparent sheets, 30 μm, column 2, lines 64-68) measured in any two directions within the planes of the film which are perpendicular to each other (column 3, lines 1-10), for the purpose of providing minimized optical interference to the display (column 3, lines 10-15). Ichikawa in view of Land, fails to disclose that the transparent substrate has retardation properties that satisfy the following relations at any of the wavelengths ranging from 380 nm to 780 nm: $-10\ nm \leq (nx - ny) \times d \leq 10\ nm$; and $0\ nm \leq \{(nx + ny)/2 - nz\} \times d \leq 40$ nm.

However, Aizawa teaches a sheet polarizer (polarizing film, column 1, lines 5-10) comprising two polycarbonate substrates (To both surfaces of a polarizer, column 3, lines 65-68, the polycarbonate casting film was bonded, column 4, lines 1-2), which are transparent as defined by Applicant's specification (the transparent substrate, polycarbonate, page 11, third paragraph) and a polarization layer sandwiched between them, wherein the polarization layer comprises a polyvinyl alcohol film (to both surfaces of a dichroic dye-type polarizer wherein Direct Black was adsorbed in a polyvinyl alcohol film, column 3, lines 65-68). Aizawa teaches that the polyvinyl alcohol film is stretched, and a polarizing element adsorbed to the film in an oriented state (adsorbing a dichroic dye, elongating the film, column 1, lines 60-66). Aizawa teaches that the transparent

substrate has a retardation of 5 nm (column 4, lines 1-20), which is measured at a 45 degree angle to the longitudinal axis of the transparent substrate (direction of the film, column 2, lines 54-65), and that it is preferred to have substantially no orientation (column 2, lines 65-68) and hence no retardation, that is a retardation of 0 nm in theory (column 3, lines 9-10), for the purpose of providing a transparent substrate with minimized retardation, and hence the desired minimized optical interference to the polarizing layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have optimized the process of forming the transparent substrate in the sheet polarizer of Ichikawa in view of Land, to form a transparent substrate with retardation properties that are close to zero, and hence satisfy the following relations at any of the wavelengths ranging from 380 nm to 780 nm: $-10\ nm \leq (nx - ny) \times d \leq 10\ nm$; and $0\ nm \leq \{(nx + ny)/2 - nz\} \times d \leq 40\ nm$, in order to provide a transparent substrate with the desired minimized optical interference to the polarizing layer, as taught by Aizawa, and hence the display, as taught by Ichikawa.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon

Sow-Fun Hon

03/27/07

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